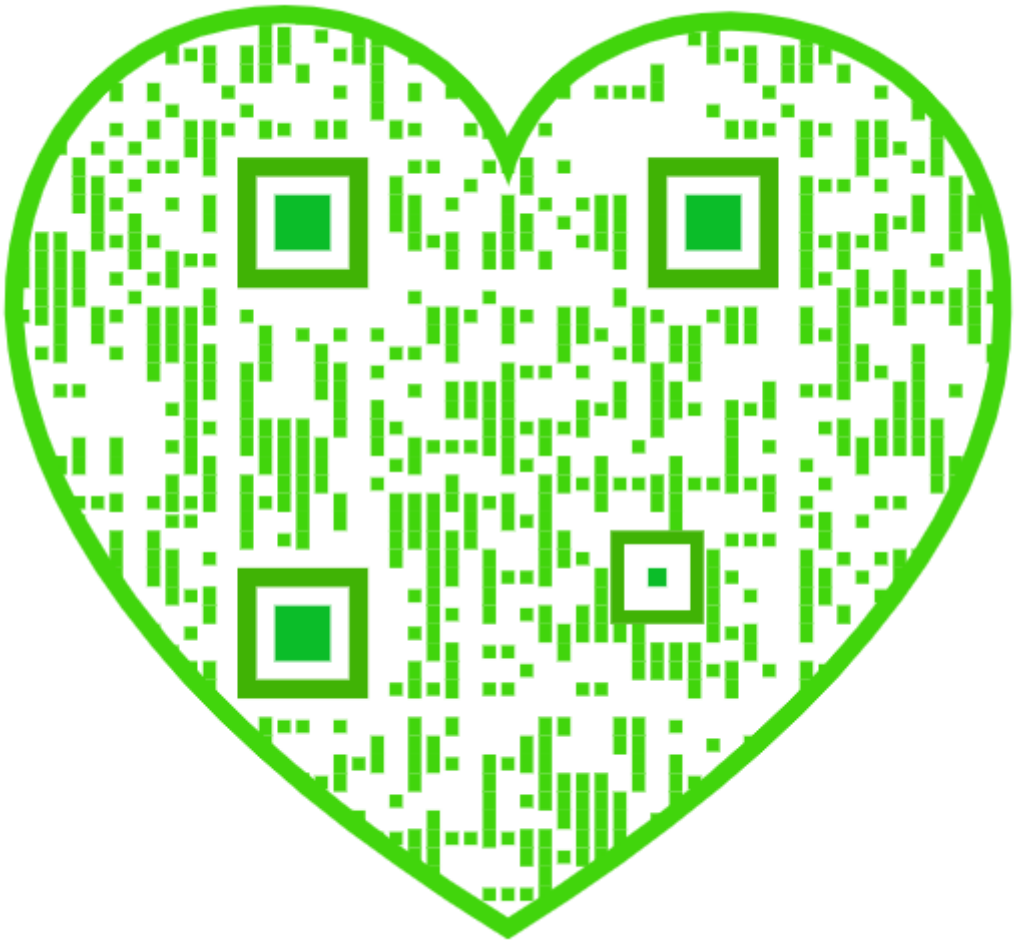
Loomis (J. N.)

On the supposed anæsthetic influence of electricity.

SURGEON GEN'L'S OFFICE
203
LIBRARY.



and the most stimulating expectorants in which there was some brandy, nutritious broths, etc., kept him breathing and spitting until the 29th, eight days from the time he took to his bed, he had so rallied that he could sit up and was soon out.

I intended to have noticed other cases, some of which required the lancet and other potent remedies, but this article being extended already beyond proper limits, I will close by congratulating myself on the fact that having been governed in the treatment of pneumonia by the above pathological views, I have not lost a single case of pleurisy or pneumonia since the death of Mr. J. A. L., which occurred the 16th of January, 1854.

ARTICLE V.

On the Supposed Anæsthetic Influence of Electricity.

By Prof. I. N. Loomis, M. D.

[*The substance of the following paper first appeared in an article in the* "Savannah Republican," *of 7th instant, and another in the* "Savannah Georgian," *of 10th inst.*]

The statement has appeared in several Dental Journals, in various public prints, and in two or more Medical Journals, that a current of electricity, or rather a series of shocks, passed through a tooth during its extraction, greatly lessens, or entirely prevents the ordinary pain of the operation. If such a current, or series of shocks can so obtund the sensory nerves of the parts affected in the extraction of a tooth as to prevent pain, the same would be true of other parts involved in any surgical operation.

We propose to examine this subject from a scientific point of view, and ascertain if possible, how much reliance may be placed in the statement alluded to above.

The legitimate effect of a current of electricity upon the

nervous system, is to exalt, not to depress its excitability. This is true of every division of the nervous system, whether sentiment, excito-motory, or cyclo-ganglionic; true, however, only to the extent of the powers of the nervous system to bear the stimuli of the current. Steam may be said to exalt the powers of a steam engine, this is true, however, only to the extent its valves, screws, piston and rods, are capable of bearing the stimulus of the steam. Thus with the nervous system. Up to the point of the derangement of some of its functions by the violence, or intensity of the current, nervous power is increased thereby. If a current of electricity be passed through the tongue, the sense of taste becomes more acute; through the optic nerve, the sense of vision; through the auditory nerve, the sense of hearing; and through the general sensory nerves, the sense of feel. The motor nerves may be so excited as to produce, according to the direction of the currents, flexion or extension of the muscles, even against the most powerful efforts of the will, thus usurping, as it were, the functions of volition. Dr. Wilson Philip, assures us that "galvanism (electricity) is capable of performing all the functions of the nervous system." Prof. Matteucci, M. Du Bois Reymond, Faraday, and the ablest electricians in the world have verified the assertion. To take cognizance of pain is most assuredly one of the functions of the nervous system.

Experiments upon the bodies of recently executed criminals are familiar to the general reader, as well as to medical men. The subject has been made to rise to his feet, open his eyes and stare wildly about, make efforts to speak, throw his arms violently in every direction, the breast has been made to heave as in respiration, and all the appearances of life, have been exhibited with the most frightful precision. The more obscure phenomena of life, such as digestion, secretion, absorption, nutrition and capillary circulation may be imitated by an electrical current.

With these facts before us, it will be seen how utterly impossible is it for a current of electricity to suspend sensibility to pain, until it is carried so far as to materially dis-

turb and derange the functions of the nervous system. In other words, to prevent, or neutralize the pain of any surgical operation, by an electrical current, it will be necessary to produce an equally or more painful impression upon the nervous system, by the disturbing and deranging influence of the current. And, as to most persons, the electrical shock is more frightful and disagreeable than ordinary pain, it is clearly manifest that the anæsthetic effects of the shock can be of no practical value either to the surgeon, or the surgeon-dentist.

Thus much for the scientific principles involved in this question. Let us see the results of direct experiment. For the purpose of testing the matter more thoroughly, we took our Magneto-electrical battery into the office of a skilful Dentist in this city, and instituted a series of experiments for that purpose. Having drilled a hole through the end of one handle of a pair of forceps, through this he passed the conductor from one pole of the battery. We then held the other pole in one hand, while he applied the forceps to a number of teeth, some perfectly sound, one that had been filled, and to another partially decayed, but not filled. He attached one pole of the battery to a variety of instruments, cutting and other, and applied then to a number of teeth, and to three fangs containing no vestige of the proper nerve of the tooth. We tried every degree of intensity of current, but with all, the pain occasioned by the current of electricity, was most severe, and with some excruciating. He then extracted one fang with the current of electricity passing through it, and two others without the current. We could perceive no difference in the actual pain, independently of the unpleasant sensation of the electrical current.

We then passed the current from one hand, through a single finger of the other hand, the dentist inflicting pain with a sharp instrument in the direct course of the current. We made the same infliction without the current. We tried similar experiments with other parts of the body, such as a single finger, a line across the forehead, etc., and all with similar results.

It is true, that, in some instances, the severe and peculiar pain of the electric current may so divert the attention of the subject from the pain of extraction, that he may be unconcious of the latter, but in our case we enjoyed the benefit of no such diversion. Besides, *the pain of a very feeble current of electricity, through a tooth, is more severe, ordinarily, than the extraction of the tooth without the current.* Doubtless, were a Dentist, whilst extracting our tooth with one hand, gouging our eye out with the thumb of the other, we should know little of the pain of the former. On this principle alone, can electricity prove "*anæsthetic*" (?) in extracting teeth.

We are aware that committees, appointed by various scientific Associations, such as the Franklin Institute at Philadelphia, and the American Institute at Baltimore, have reported favorably to the anæsthetic effects of electricity in the extraction of teeth. Dentists, and we believe Dental Associations, have experimented upon various individuals, and have also reported favorably.

The committee appointed by the Franklin Institute report as follows, the report dated April 8th, 1858.

"In regard to the efficacy of the process, the Committee has the following testimony:

1st. 164 teeth were extracted in the presence of the Committee, a report of which cases is herewith submitted.

2nd. Members of the Committee have experimented independently with the apparatus. The report of one member who has had it in use four weeks and extracted between four and five hundred teeth with it, is also submitted.

The Committee is satisfied, from the observation and experiment of its members, that in a large majority of cases of extraction with this apparatus, no pain whatever is felt by the patient.

To test the question whether the effect might not be simply mental, the circuit was broken without the patient being aware of it, when the usual pain was experienced; although, in the same patient, and on the same occasion, teeth had been removed, while the current was flowing, without causing pain.

In the less successful cases, the teeth were broken and diseased below the level of the gum, and the pain, in adjusting the forceps previous to the completion of the circuit and the extraction, was considerable.

The sensation produced by the passage of the current is not painful, it being so adjusted as to be *just perceptible* to the patient. The committee believes its use to be entirely without danger, and not likely to be followed by any unpleasant after effects."

As the other reports are of minor importance compared with this, though similar in principle, we will confine our attention to this, and if we succeed in showing clearly and upon scientific grounds, that it is utterly worthless in the establishment of a scientific principle, our reasoning will apply with equal or greater force to them.

We have been informed by several of the most intelligent dentists of this city, that under *ordinary circumstances* they frequently extract teeth, the person assuring them they felt no pain.

By a mental impression of almost any character, it were easy so to abstract the perception as to render the subject unconscious of pain. Were any Dentist of this city, or elsewhere, to extract any number of teeth for different individuals, and previously to extraction, were to employ some *hocus pocus* flummery to divert the attention of the patient from the idea of pain, or in other words, make the impression that the teeth were to be extracted without pain, we venture the assertion, that in a "majority of instances," they would assure the operator they felt very little or no pain. As we previously stated, it is alone upon this diversion of the consciousness, that electrical shocks can prevent pain in the extraction of teeth. We are assured that every intelligent physician will sustain us in this position.

Let us present a few "cases" in support of this proposition. A very intelligent young girl, of about ten years, had several teeth extracted by the "freezing process." She declared that none of them, except the first, hurt her in the least, this being swollen. She was particularly ques-

tioned respecting the last one, and she repeated the assurance that she felt no pain whatever. The Dentist, to convince the mother that absence of pain was an effect of the imagination, and not of the freezing process, showed her that in the last instance, there was no ice in the apparatus. This statement we had from the lady herself, who, in position, talent, and worth, has no superior in this city or elsewhere.

We have questioned several individuals, who, under some mental impression at the time, declared their teeth were extracted "without the least pain."

One boy was crying vociforously, when the dentist assured him that he would *pow-wow* him, and extract his teeth without pain. After making a few passes over the jaw, and pressing it, he removed the teeth, the boy not flinching. He declared he felt no pain, and so well pleased was he with the operation, that he returned the next morning of his own accord and had another extracted.

Dr. H. L. Byrd mentoined a case which occurred in South Carolina, in his own practice, illustartive of the same principle. Being called one day to a rice plantation, near Georgetown, there being no dentist in the neighborhood, he was requested to extract teeth for the negroes. He removed about thirty in all, and when he had finished, seven or eight of them assured him they felt not the slightest pain. About one in four, in this instance, were exempt from pain. This was doubtless attributable to the anæsthetic effects of the Dr's. good looks.

This principle applies to other cases than those of extracting teeth.

Dr. Beddoes, wishing to try the effects of the inhalation of the prot-oxide of Nitrogen on a paralytic subject, placed him in charge of Humphrey Davy, then a young man. Previously to administering the gas, Davy, desiring to know the temperature of his system, placed a thermometer under his tongue. The paralytic, not knowing what he was doing, and thinking this was *the remedy*, immediately declared he felt better. Nothing more was then

done. He was directed to return the next morning. The thermometer was again placed under his tongue, and after repeating the operation for a fortnight, he was dismissed perfectly cured.

Let any one who doubts the power of mental impressions over physical pain, read but a portion of what may be found on this subject scattered through our various medical works, and others devoted to psychological subjects. Let him read the history of the "Royal Touch," by which thousands were instantly cured of the King's Evil (Scrofula). Let him read the history of "Bezoards," of the *Aqua hirundinum cum castoreo*, of the "Oniscus," the "Ananazipta," the "Abracadabra," and a thousand other charms and *carmina*, and he will be convinced of the influence of the imagination over the physical sensations.

Let him read the history of the "Metallic Tractors," or "Perkinism," by which all "the ills that flesh is heir to" yielded to the Tractors, as by the touch of magic.

Elisha Perkins, of the "wooden-nutmeg State," conceived the idea that the application of the different metals to the surface of the body might be useful in the treatment of disease. He accordingly prepared a short pointed rod of steel, and another of brass. The points of these were drawn downwards over the affected parts, and almost every disease yielded to the touch as though it had been miraculous. He is represented as having been a strictly honest man, yet he first humbugged himself and many of his countrymen into the belief of the panacean virtues of his tractors; he then visited Great Britain, and humbugged the Empire into the same belief.

We have room but for the following from the report of the "Perkinistic Committee" of London on the establishment of their institution:

"Mr. Perkins (the son of the proposer) has annually laid before the public a large collection of new cases, communicated to him for that purpose, by disinterested and intelligent characters from almost every quarter of Great Britain. In regard to the competency of these vouchers, it will be sufficient

simply to state, that amongst others whose names have been attached to their communications, are eight professors in four different universities, twenty-one regular physicians, nineteen surgeons, thirty clergymen, twelve of whom are Doctors of Divinity, and numerous other characters of equal respectability. The cases published by these gentlemen in March last, the date of Mr. Perkins' last publication, amount to about *five thousand*. Supposing that not more than one cure in three thousand which the tractors have performed has been published—and the proportion is probably much greater—it will be seen that the number to March last will have exceeded *one million five hundred thousand*." Lord Rivers was elected President of the Society for the promotion of Perkinism, and many of the most distinguished persons in Great Britain became officers and members.

Dr. Haygarth, to test the virtues of the metallic tractors, formed a pair of wooden ones, and applying them with much pomp and ceremony, produced effects that astonished himself. Obstinate pains of the limbs were suddenly cured, immoveable joints restored to motion, and, says Dr. Bostock, "except the renewal of lost parts, or the change of mechanical structures, nothing seemed beyond their power to accomplish." The wooden tractors exposed the delusion, and the humbug bubble suddenly collapsed. Where now is Perkinism, with its elaborate reports of learned committees, and its array of over one and a half million of cases?

If any one is still unconvinced of the utter worthlessness of *such reports* in the establishment of scientific principles, let him read the report of the committee on Mesmerism, when it made its first appearance in Europe, a committee composed of Dr. Benj. Franklin and the most distinguished *savans* of France. Where now is *that Mesmerism* with its *facts*, its reports of learned committees, and its "cases?" Cases are recorded in which a few passes have prevented pain in the extraction of teeth, and other major operations. These are to the point. But we could fill a large volume, with what is familiar to every well-read medical man.

showing the effects of imagination in influencing pain.

We have read attentively all the reports we could find, from various associations and individuals, and in all we have seen written or reported on the subject of extracting teeth under the influence of electricity, we have met with the testimony of *but one* individual upon whose person any experiment of the kind had been tried. Men have looked on and "supposed" the amount of pain the subject experienced, and committees have reported what they saw, but where is the report of what has been *felt*? We said we had one case of direct testimony.

It is from J. R. McCurdy, one of the Editors of the Dental News Letter, published at Philadelphia. He is commenting on the very reports, to which we have alluded, and one of which we have given. He says "one thing, however, we could not fully understand, which was the shrinking of the patient on the application of the forceps, for, we reasoned, if no pain, why this indication of fear? But this was clearly explained to us in a subsequent experiment by another operator, by having the application made to our own mouth. The sensation, when the current was completed, being anything but agreeable, and somewhat similar in pungency to the application of fire, or a jet of flame to the living tissue, when we could readily understand why the pain of extraction would be neutralized to a very great extent under this influence, and were at once reminded of our former opinion of its merely changing the character of the pain."

This testimony is of more scientific value than a thousand cases brought up promiscuously *for the purpose of experiment*, their feelings previously impressed, and allowing others to report for them.

Should any individual, however, still doubt the correctness of our positions, he has but to try *upon his own teeth* the effects of electrical shocks, either with or without extraction.

From all the facts and principles bearing upon this question, and from experiments upon ourself, we are irresistably led to the conclusion, that whenever any person imagines that electricity has prevented pain in the extraction of his tooth, he has simply been humbugged, and that the operator is either humbugging himself, or endeavoring to humbug his patient.

Savannah, Ga., July 14th, 1858.

ARTICLE VI.

A Case of Delirium Tremens Successfully Treated with Cannabis Indica. By John E. Van Molle, A. M., M. D., of Savannah, Georgia.

During the last Spring Dr. Jas. Morel, of this city, suggested to myself, among others, the use of Cannabis Indica as a curative means in Delirium Tremens; the idea having originated with him, from a knowledge of the effects of this drug, both in the deranged and healthy conditions of the mind. Experiments upon this suggestion were immediately instituted by our *confrere*, Dr. Godfrey, who has given us the results of three different cases, in the July No. of the *Savannah Journal of Medicine*. We regret to say, however, that we are unable to recognize all of these as having been "bona fide" cases of Delirium Tremens, neither the symptoms, nor the time of occurrence, &c., warranting such a conclusion.

I applied this remedy in the case of an individual affected with this disease, who recently fell under my observation, but with results widely differing from those referred to above. Such being the case, it is necessary that I should state briefly what the physiological effects of this medicine are, what the effects produced by it in the diseased condition of the mind, and show the relations of mental diseases to Delirium Tremens, and thus endeavor to arrive at the *rationale* of the treatment.

Cannabis Indica, a species of hemp, has been in use for ages in Oriental countries, as an intoxicating agent, and is capable of exalting the mental faculties to a considerable degree above the normal standard. Its use is as common with the inhabitants of the east, as fermented liquors are with us. Although the specific and energetic action of the juice of this plant on the cerebral functions had been witnessed by every observing traveller, it had only been applied to a very limited extent in medicine, and only as a narcotic, until Dr. Moreau of Tours, (France,) brought it to public notice as a